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10/571,464	03/13/2006	Udo Steffl	32128227599	6494

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EXAMINER	
LEE, RIP A	

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1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/571,464	STEFFL, UDO	
	Examiner	Art Unit	
	Rip A. Lee	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20 is/are rejected.

7)☒ Claim(s) 1, 3-11, 14, 15 and 17-20 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 10-10-06;03-13-06.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: An objection has been made because the cited passages pertain directly to claimed subject matter. It is not clear which industrial standard is being applied for determination of deflection *via* heat sag test. Paragraphs [0005] and [0006] cite DIN 53461 and DIN 53462, respectively, either of which may or may not be the test used herein. The standard ISO 3167 in paragraph [0007] appears to describe the dimensions of test bars, and DIN ISO 294 appears to describe an injection molding protocol. Applicant is encouraged to elucidate this matter.

Claim Objections

2. Claim 1 is objected to because of the following informalities: The claim is drawn to a composition exhibiting a particular feature that has been determined by an ill-defined protocol. Since there is no associated industrial standard cited, the description offered in the claim is vague, especially in view of the fact that heat deflection would appear to be dependent on the thickness of the sample. Appropriate correction is required.

3. Claim 3 is objected to because of the following informalities: It is not clear what constitutes "polyamide MDX." This appears to be a trade name. Appropriate correction is required.

4. Claim 4 is objected to because of the following informalities: Please replace "syndiotactic diades" with "racemic diads." Appropriate correction is required.

5. Claim 5 is objected to because of the following informalities: Please replace "styrene-co-acrylnitrile" with "styrene-co-acrylonitrile" and replace "methylvinyloxazoline-co-acrylnitrile" with "methylvinyloxazoline-co-acrylonitrile." Appropriate correction is required.

6. Claim 6 is objected to because of the following informalities: While claim 6 describes preparation of component (C), it is not clear whether the graft component is actually present in the composition. Appropriate correction is required.

7. Claim 6 is objected to because of the following informalities: Please replace "ithaconic" with "itaconic." Appropriate correction is required.

8. Claim 6 is objected to because of the following informalities: Please rewrite the group of materials unambiguously and succinctly as "maleic anhydride, itaconic anhydride, (meth)acrylic acid or a (meth)acrylic ester." Appropriate correction is required.

9. Claim 7 is objected to because of the following informalities: Please insert "consisting of" after the word "group." Appropriate correction is required.

10. Claim 7 is objected to because of the following informalities: Please remove "the" which appears before "butadien" and replace "butadien" with "butadiene." Appropriate correction is required.

11. Claim 7 is objected to because of the following informalities: It is not clear what "other co-monomers" are included in the mixed polymers of butadiene/and or isoprene with styrene. Appropriate correction is required.

12. Claim 7 is objected to because of the following informalities: It is not clear what is mean by the term "hydrated product." Appropriate correction is required.

13. Claim 7 is objected to because of the following informalities: It is not clear whether the hydrated products or grafted products are based on the polymers of butadiene and/or isoprene with styrene, recited in the preceding phrase, or some other unidentifiable base resin. Appropriate correction is required.

14. Claim 7 is objected to because of the following informalities: The entire passage from the word "non-polar" to "metal ions" needs to be amended since the diction is poor. Grafted olefin homopolymers and copolymers would not be non-polar, as the claim language suggests. In view of the field of endeavor and the nature of the invention, is not certain whether the claim intends to encompass use of non-functionalized polyolefin. Appropriate correction is required.

15. Claim 7 is objected to because of the following informalities: Please replace "maleic acid anhydride" with "maleic anhydride," replace "ithaconic acid anhydride" to "itaconic anhydride." Appropriate correction is required.

16. Claim 7 is objected to because of the following informalities: Please replace "and their esters" with "or a (meth)acrylic ester." Appropriate correction is required.

17. Claim 7 is objected to because of the following informalities: Please replace "or carbonic" with "and carbonic" so that the claim contains proper Markush construction. Appropriate correction is required.

18. Claim 7 is objected to because of the following informalities: Please replace the comma before "or carbonic" with a semicolon to delineate Markush elements clearly. Appropriate correction is required.

19. Claim 7 is objected to because of the following informalities: The term "carbonic acid" is a direct translation which renders the description of "functionalized copolymers" unclear. Applicant may simply state "(meth)acrylic." Appropriate correction is required.

20. Claim 7 is objected to because of the following informalities: The term "such as" lends uncertainty to the claim because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). Appropriate correction is required.

21. Claim 8 is objected to because of the following informalities: Please replace "with a maleic acid anhydride groups rest" with "containing maleic anhydride groups." Appropriate correction is required.

22. Claims 8 and 9 are objected to because of the following informalities: It is not clear what Applicant intends to describe with respect to groups that have not undergone reaction. It appears that not all maleic anhydride groups have undergone conversion to maleimide groups. Appropriate corrections are required.

23. Claims 9 and 10 are objected to because of the following informalities: Please replace "copolymers" with "copolymer." Appropriate corrections are required.

24. Claim 11 is objected to because of the following informalities: Please replace "the admixture" with "an admixture" and replace "in the form of" with "comprised." Appropriate corrections are required.

25. Claim 11 is objected to because of the following informalities: Please replace "percentages" with "percent of" for each of the ingredients listed in the claim. Appropriate corrections are required.

26. Claim 14 is objected to because of the following informalities: Please rewrite "60nm" as "60 nm" and rewrite "dibutylphthalat" as "dibutylphthalate." Appropriate correction is required.

27. Claim 15 is objected to under 37 CFR 1.75(c) as being in improper form because it is a multiple dependent claim that makes reference to two other claims. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

28. Claims 17 and 18 are objected to because of the following informalities: The preamble of the claims should be revised because claim 1 is drawn to a composition rather than a car body trimming part and production thereof. Appropriate corrections are required.

29. Claim 18 is objected to because of the following informalities: The claim is drawn to production of parts using two techniques. The claim is rendered vague and unclear because the claim recites "using" without any active, positive steps delimiting how "using" is actually practiced. Appropriate correction is required.

30. Claims 18 and 20 are objected to because of the following informalities: It is not clear what is meant by the term "gas inside pressure technique." The discrepancy appears to arise from translation/transcription; Applicant appears to refer to blow-molding. Appropriate corrections are required.

31. Claims 19 and 20 are objected to because of the following informalities: The preamble of the claims should be revised because claim 2 is drawn to a composition rather than a car body trimming part and production thereof. Appropriate corrections are required.

Claim Rejections - 35 USC § 112

32. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

33. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 16 provides for the use of a composition, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 16 is also rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

34. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There is insufficient antecedent basis for the terms "the injection-molding technique" and "the gas inside pressure technique."

Claim Rejections - 35 USC § 102

35. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

36. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

37. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

38. Claims 1, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brissot (U.S. 2004/0110890).

Brissot teaches a polymer composition that exhibits a deflection of 2 mm in a heat sag test performed at 200 °C for 30 min and a deflection of 1.85 mm at 200 °C for 30 min (Table 1, entry 1). The reference does not show the deflection at 250 °C, however, in view of the fact that there is little variation between deflection in tests performed at 180 °C and 200 °C, a reasonble basis exists to believe that the polymeric material exhibits a deflection considerably less than 15 mm, as recited in the instant claim. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). One having skill in the art would have found it obvious to make a car body part such as an automobile body panel because such an end use is taught by the inventor (claim 11), and one of ordinary skill in the art would have found it obvious to use an injection molding apparatus, as shown in the working examples of Brissot, to make such a part.

39. Claims 2-7, 11-13, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Masuyama *et al.* (U.S. 6,013,709) in view of evidence presented in Ishihara *et al.* (JP 62-187708; equivalent U.S. 4,680,353 relied upon for translation).

Masuyama *et al.* teaches a composition comprising a resin component containing (A) polyamide resin, (B) syndiotactic polystyrene resin, (C) compatibilizing resin, and (D) (un)modified rubbery elastomer.

Polymer (A) is polyamide-6 or polyamide-6,6, or those derived from adipic acid and *m*-xylylenediamine, *i.e.*, nylon-MXD6 (col. 4., lines 50-56).

The polystyrene component (B) exhibits greater than 85 % of racemic diads, as determined by ^{13}C NMR spectroscopy (col. 3, line 55) and a weight average molecular weight of greater than 50,000 (col. 4, line 13). According to the inventors, and as shown in Preparation example 1, syndiotactic polystyrene homopolymer, labeled SPS, may be prepared according to the method taught in Ishihara *et al.*, JP 62-187708 (see col. 4, line 28). Turning to this reference, one finds that SPS with comparable molecular weight of 350,000 and 90 % racemic dyads has a

melting point of 270 °C. Thus, it may be concluded that the polystyrenes of Masuyama *et al.*, prepared with similar catalysts and having comparable molecular weight and microstructure, exhibit a melting point within the claimed range of 160-310 °C.

The rejection is anticipatory since multiple references are permitted under 35 U.S.C. 102 when the extra reference is cited to show that a characteristic not disclosed in the reference is inherent. Note that the critical date of extrinsic evidence need not antedate the filing date. See MPEP 2131.01.

Compatibilizing resin (C) is compatible with the polystyrene resin, and it contains a polar functional group that reacts with polyamide resin. A discrete example is styrene-maleic anhydride copolymer (col. 6, line 8). Styrenic graft copolymers also fall under the class of compatibilizing resin, and these include styrene-methyl methacrylate graft copolymer, SPS modified with maleic anhydride, and SPS modifed with glycidyl methacrylate (col. 6, lines 14-2).

Component (D) is a rubbery polymer selected from SBR, SBS, SEB, SEBS, SIR, SEP, SIS, or SEPS rubber (col. 9, lines 32-34).

Filler is included in the compositions with particular preference for glass fiber (col. 13, line 20). Suitable coupling agent and glass film forming auxiliaries for improving dispersion are disclosed in col. 13, line 25-col. 14, line 20. Further conventional processing aids such as nucleating agent, mold release agent, metal soaps, flame retardants, antistatic agents, as well as conductive filler such as carbon black, are disclosed in col. 14, lines 37-44. Filler constitutes 1-350 parts by weight of the entire composition (col. 14, line 30).

Compositions find use in manufacture of molded automobile parts (col. 1, lines 10-15).

40. Claims 5 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuyama *et al.* in view of Steffl (DE 101 34 142).

Masuyama *et al.* also discloses compatibilizing resins derived from polystyrene (col. 6, lines 1-3) containing polar groups such as carboxylic acid amide groups, imido groups, and oxazoline groups (col. 5, lines 60 and 64), but the reference does not recite specific nomeclature of polymeres. And while reference does not disclose poly(styrene-*co*-maleic acid imide) copolymer *per se.*, in light of the fact that Masuyama *et al.* teaches styrene-maleic anhydride copolymer, one having ordinary skill in the art would have found it obvious that embodiment contemplated by Masuyama *et al.* is an analogous poly(styrene-*co*-maleimide) copolymer because maleimide is simply a cyclic carboxylic acid amide. In absence of further details or guidance, one having ordinary skill in the art turns to Steffl, which teaches compatibilizing polymer for syndiotactic polystyrene resins. The inventor teaches that, in addition to poly(styrene-*co*-maleic anhydride), polymer such as poly(styrene-*co*-methylvinyloxazoline), poly(styrene-*co*-methylvinyloxazoline-*co*-acrylontrile), or poly(styrene-co-maleic acid amide) are functionally equivalent as compatibilizer becasue they contain a polystyrene backbone that is compatible with the syndiotactic polystyrene base resin and a polar functional group that is compatible with other polar materials in the composition; see paragraph [0017]. Thus, it would have been obvious to one having ordinary skill in the art to use poly(styrene-*co*-methylvinyloxazoline), poly(styrene-*co*-methylvinyloxazoline-*co*-acrylontrile), or poly(styrene-co-maleic acid amide) as compatibilizer in the composition of Masuyama *et al.* because these are known, functionally equivalent compatibilizing resins, and one of ordinary skill in the art would have expected functionally equivalent materials to work with a reasonable expectation of success. The combination is especially obvious because Masuyama *et al.* contemplates use of polystyrene compatibilizer containing carboxylic acid amide, imido, or oxazoline groups, and Steffl fills in the otherwise missing element. In summary, the subject matter of claim 8 is obvious over Masuyama *et al.* in view of Steffl. The subject matter of claim 9 and 10 are obvious over Steffl. The inventor teaches preparation of poly(styrene-co-maleic acid amide) in which the polymer has a weight average molecular weight of 80,000-20,000 and wherein 0.1-10 mole % of maleic anhyride groups have not been converted to imide; see paragraph [0019]. And

while the glass transition temperature of this polymer is not disclosed in the reference, a reasonable basis exists to believe that it exhibits the claimed Tg, especially in view of the fact that it is compositionally the same as the polymer of the claims. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

41. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masuyama *et al.* in view of Paeglis *et al.* (U.S. 5,569,516).

The discussion of the disclosures of the prior art of Masuyama *et al.* from the pevious paragraph of this office action is incorporated here by reference. While the inventors contemplate incorporation of carbon black filler, they offer no further guidance regarding the nature of the filler. Paeglis *et al.* discloses conventional carbon black having an average particle size of 10-100 nm, with a (BET, *i.e.*, N_2 adsorption) surface area of 30-1500 m^2/g and a DBT absorption of 80-350 $cm^3/100g$ that is well suited as filler for thermoplastic resins. It would have been obvious to one having ordinary skill in the art, absent any showing of criticality or unexpected results, to use the carbon black shown in Paeglis *et al.* in the composition of Masuyama *et al.* in order to make a useful product. Since the prior art shows that this type of carbon black is used for compounding in thermoplastics, one having ordinary skill in the art would have expected the combination to work with a reasonable expectation of success.

42. Claim 15 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Masuyama *et al.*

Masuyama *et al.* states that inventive compositions have excellent resistance to heat aging, however, the reference is silent with quantification of heat deflection properties. In view of the fact that the composition of the prior art is substantially the same as that described in the instant claims, a reasonable basis exists to believe that the composition exhibits substantially the same properties. Since the PTO can not conduct experiments, the burden of proof is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205

USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

43. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuyama *et al.* in view of Saito *et al.* (U.S. 5,104,937).

Masuyama *et al.* teaches that inventive compositions find use in manufacture of molded automobile parts, however, the reference does not disclose the type of part. Saito *et al.* discloses high impact polymer compositions are useful for making injection molded automobile parts such as a door panel or quarter panel (col. 5, lines 26-38). Compositions of Masuyama *et al.*, while rigid, have excellent toughness properties, as well as heat and water resistance. One having ordinary skill in the art would have found it obvious to use such a composition for manufacturing a door panel or quarter panel since these articles would require the properties exhibited by the compositions in Masuyama *et al.*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu S. Jagannathan, can be reached at (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

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November 14, 2007